

XVIII. *Notes on Aphides*. By F. WALKER, Esq. In a Letter addressed to W. Spence, Esq.

[Read 6th September, 1847.]

Grove Cottage, Southgate,
August 16th, 1847.

MY DEAR SIR,

I HAVE received your obliging letter, and I shall be happy to send you any information I can respecting *Aphides*, but my knowledge of them is as yet very slight. I believe that the dock is one of the plants from which the black bean *Aphis* (*A. Rumicis*), is hatched from the egg in the spring, and that the second generation, which is winged, migrates thence to the bean, pea, thistle, chenopodium, &c. &c. It afterwards settles on a great variety of other plants, but does not appear to thrive on them; however, it sometimes swarms in great profusion on the laburnum, broom, and furze; it was very abundant last autumn on the furze near Lancaster, and was accompanied by the male in November, and the wingless female then deposited her eggs on the spikes of that plant. Many, especially the migratory species, have wingless and winged broods alternately, and the migrations of the latter serve several purposes; they prevent the extinction of a race which would otherwise follow the withering of its food; they cause the injury inflicted to be in general but temporary, and they distribute and thereby equalize it over a district or country. I believe that the migrations are merely in search of fresh food for themselves and young ones, and not to deposit eggs, and that, generally speaking, the migratory swarms are all females, the males not appearing till late in the autumn. I began to attend to *Aphides* last year, and I did not observe any males till October and November, when I saw them in the following species, *A. Platanoidis*, *Betulæ*, *Fagi*, *Tiliæ*, *Rubi*, *Viburni*, *Persicæ*, *Ribis*, *Mali*, *Sorbi*, *Dichoda*, and a few more. The winged males of the above named species all paired with wingless females previous to the egg-laying of the latter. Some species are always wingless, or perhaps in fine warm seasons a winged individual may now and then appear amongst the swarms; in other species all the broods are winged till the last, wherein the wingless oviparous female pairs with the winged male; but in the majority of species the wingless and winged generations are alternate, and the second brood are always winged. The best treatises on *Aphides* that I have

read, are one by Dr. Richardson (Phil. Trans.), and one by W. Curtis (Linn. Trans.) As far as I have remarked, the observations of the writer in the Phil. Trans., which you quote, are correct in regard to several species. I have never seen a male pairing with a winged female, but Mr. Hardy, an entomologist of Newcastle, informed me last year that he had observed such to be the case with one species, and I have no doubt of his accuracy. In one species (*A. Saliceti*), the wingless and winged broods of females are alternate, but in June wingless oviparous females appeared differing much in structure from their viviparous relations, and accompanied by wingless males, with which they paired. *A. juglandicola*, a pretty little yellow or orange species on the walnut, is also remarkable; the female has continued viviparizing for the last six weeks, but a short time ago the male suddenly appeared, and after a few days passed away; it was accompanied by a variety of the female, but I did not observe that they paired. I cannot say that I have seen this year any periodical flight of *Aphides*, but I do not believe that it was confined to one day nor to one species, the bean *Aphis*. Last year I distinctly remarked two large flights or migrations of several species; the first in the middle of May, the second in the middle of September; they both occurred on still fine warm days, and I think that the flight of *Aphides* is too passive and feeble to allow their migrations from a long distance. In most species, where the generations are alternate, the winged females migrate as soon as their wings are fully developed and dry, and the chief object of such flights is to place their wingless young ones in possession of fresh pastures, and their existence soon ceases when this purpose is accomplished. Do you think that a comparison of the analysis of different plants would enable us to discover why *Aphides* prefer some to others in their migrations? *A. Rosæ* migrates from the rose to the teazle, another species from the rose to the blades of corn and grasses, a third from the rose to the columbine, a fourth from the willow to umbelliferous plants, &c. Are their correspondencies in the respective proportions of the constituent parts of these plants? I remain, my dear Sir, yours sincerely,

FRANCIS WALKER.
